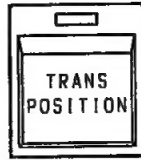


TRANSPOSITION



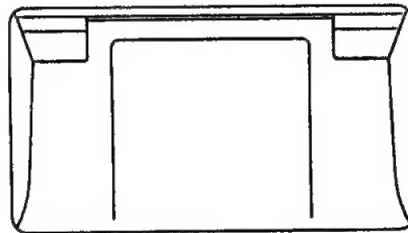
Turning this button ON allows you to enable Transposition of the Electone. This means that when you play the instrument, it sounds in a higher or lower key than you play.

When the TRANSPOSITION button is turned ON, the MULTI MENU displays the current Transpose value. By turning the DATA dial, you can change the Transpose value within a range of - 3 steps to (+) 3 1/2 steps, in half-step increments.

A value of "0" means no Transposition, even if the TRANSPOSITION button is on.

Transposition is useful when accompanying transposing instruments, such as the clarinet or the saxophone. It can also be used to accommodate singers who cannot perform a certain song in the written key.

PACK



The PACK slot allows you to use Yamaha memory packs to store or retrieve data for your Electone. These packs, might be either RAM (Random-Access Memory; that is, allowing you to store your own data on them) or ROM (Read-Only Memory; that is, containing preprogrammed data).

These Packs are available in three varieties:

Registration Pack: Stores data for the Registration Memory and Chord Sequence Programmer. (One blank RP-5 has been included with your US-1.)

FM Voice Pack: Contains data for "USER" voices that can be added to the various Voice Sections. (Optional.)

Rhythm Pattern Pack: Contains data for "USER" patterns for the Rhythm. (Optional.)

REGISTRATION PACK

To read data from a Registration Pack

Step 1: Insert a Registration Pack. (At this time, the READY lamp lights up.)

Step 2: While pressing the CONFIRM button, press the FROM PACK button.

NOTE: Data cannot be read if the rhythm has been started or while the C.S.P. is operating.

MULTI MENU when reading is started:

MEMORY PACK READ ---> START

MULTI MENU for successful completion of reading:

MEMORY PACK READ ---> COMPLETED

MULTI MENU for unsuccessful termination of reading

MEMORY PACK READ ---> DATA ERROR!!

MULTI MENU if a non-US-1 pack is installed

MEMORY PACK NOT FOR US-1 !!

MULTI MENU if a Voice Pack is installed

MEMORY PACK FM VOICE PACK !!

MULTI MENU if a Pattern Pack is installed

MEMORY PACK PATTERN PACK !!

When the reading of data is successfully completed ("COMPLETED" appears on the MULTI MENU), the READY lamp lights up; in any other case, the ERROR lamp blinks, three beeps are heard, and data are not read.

After a short interval, the MULTI MENU returns to its initial Power-ON display.

To write data to a Registration Pack

Step 1: Insert a Registration Pack. (At this time, the READY lamp lights up.)

Step 2: While pressing the CONFIRM button, press the M. (TO PACK) button.

MULTI MENU when writing is started

MEMORY PACK WRITE ----> START

MULTI MENU for successful completion of writing

MEMORY PACK WRITE ----> COMPLETED

MULTI MENU for unsuccessful termination of writing

MEMORY PACK WRITE ----> FAILED

MULTI MENU if the Pack is write-protected

MEMORY PACK WRITE ----> PROTECTED

If you attempt to use a non-US-1 pack, or an FM Voice Pack, or a Rhythm Pattern Pack, the MULTI MENU displays the appropriate error message as previously depicted.

When the writing of data is successfully completed, the READY lamp lights up ("COMPLETED" appears in the MULTI MENU); in any other case, the ERROR lamp blinks, three beeps are heard, and data is not written.

After a short interval, the MULTI MENU returns to its initial Power-ON display.

The data that can be stored in a Registration Pack

- (1) Contents of Registrations

1

 -

16

- (2) Song data of the C.S.P.
- (3) User Voice data (from an FM Voice Pack)
- (4) User Rhythm Pattern data (from a Rhythm Pattern Pack)
- (5) The ON/OFF status of Transposition, and the Transpose value
- (6) The Pitch value
- (7) The ON/OFF status of Right Foot Switch control and its selected function
- (8) The User Assign data of Keyboard Percussion

FM VOICE PACK (OPTIONAL)

Step 1: Insert an FM Voice Pack.

At this time, the READY lamp lights up and the lamps of the VOICE button in the ACCOMPANIMENT section and buttons numbers 1 and 2 in the other Voice sections begin blinking. These are the buttons to which you can transfer voices from the FM Voice Pack for use as USER voices.

MULTI MENU when a Voice Pack is inserted

VOICE PACK SELECT BLINKING SW.

Step 2: Select a Voice button (ACCOMPANIMENT, 1, or 2) to which you wish to transfer a Voice from the Voice Pack. (Press one of the buttons with a blinking lamp.)

All of the blinking lamps stop blinking, except for the lamp of the pressed Voice button.

MULTI MENU after Voice button selection

VOICE PACK 1: Violin 1

Step 3: Turn the DATA dial to select a Voice from the Voice Pack. (If you press some keys during this time, you can hear the Voice being displayed.)

Step 4: To set the selected Voice, press the Voice button with the blinking lamp. This transfers the displayed Voice to that button so it can be used from the Electone panel.

After Step 4 is performed, the MULTI MENU returns to the display shown in Step 1 and all lamps begin blinking again. Now you can select another Voice from the Voice Pack and assign it to a different button.

NOTES:

If there is a lit lamp on another Voice button in the section to which you are assigning the Voice from the Pack, pressing the Voice button with the blinking lamp (i.e., button 1 or 2) to set the new Voice will turn OFF the previously lit lamp and change the blinking lamp to lit status.

The Voice selected from the Voice Pack becomes the USER Voice for the button that is pressed in Step 4, and that USER Voice automatically becomes the active Voice for that button. The name of the Voice is not transferred from the Pack.

When Step 4 is performed, any USER Voice data that was previously set for the selected Voice button will be erased.

Step 5: To end this operation, remove the Voice Pack. This returns the MULTI MENU to its initial Power-ON display. The blinking of the Voice button lamp(s) also stops.

RHYTHM PATTERN PACK (OPTIONAL)

Step 1: Insert a Rhythm Pattern Pack.

At this time, the READY lamp lights up and the lamps of RHYTHM Pattern buttons numbers 1-4 begin blinking.

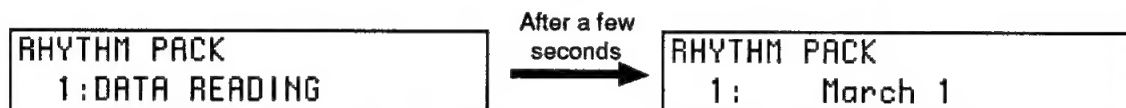
MULTI MENU when a Rhythm Pattern Pack is inserted

RHYTHM PACK SELECT BLINKING SW.

Step 2: Select a numbered Pattern button (1-4) to which you wish to transfer a Pattern from the Rhythm Pattern Pack. (Press one of the buttons with a blinking lamp.)

All of the blinking lamps stop blinking, except for the lamp of the button pressed.

MULTI MENU after Pattern button selection



Step 3: Turn the DATA dial to select a Pattern from the Rhythm Pattern Pack. (If you start the rhythm during this time, you can hear the Pattern being displayed.)

The buttons under the MULTI MENU can be used to listen to the four Auto Accompaniment patterns associated with the displayed Rhythm.

When the DATA dial is turned, at first only a Rhythm number will be displayed in the MULTI MENU. After a short interval, "DATA READING" appears and the sounding of the rhythm is temporarily stopped.

When reading of the data is completed, the Pattern name is displayed and the sounding of the rhythm resumes.

Step 4: To set the selected Pattern, press the Pattern button with the blinking lamp. This transfers the displayed Pattern to that button so it can be used from the Electone panel.

After Step 4 is performed, the MULTI MENU returns to the display shown in Step 1 and all lamps begin blinking again. Now you can select another Pattern from the Rhythm Pattern Pack and assign it to a different button.

NOTES:

If there is a lit lamp on another Pattern button, pressing the Pattern button with the blinking lamp (i.e., button 1, 2, 3, or 4) to set the new Pattern will turn OFF the previously lit lamp and change the blinking lamp to lit status.

The Pattern selected from the Rhythm Pattern Pack becomes the USER Pattern for the button that is pressed in Step 4, and that USER Pattern automatically becomes the active Pattern for that button. The name of the Pattern is not transferred from the Pack.

When Step 4 is performed, any USER Pattern data that was previously set at the selected Pattern button will be erased.

Step 5: To end this operation, remove the Rhythm Pattern Pack. This returns the MULTI MENU to its initial Power-ON display. The blinking of the Pattern button lamp(s) also stops.

EXTRA CONT. (EXTRA CONTROL)

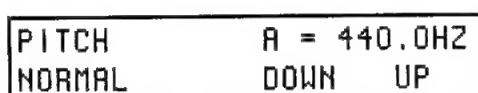


The EXTRA CONT. button allows you to adjust the pitch of the Electone and control a number of MIDI (Musical Instrument Digital Interface) functions.

Press the EXTRA CONT. button. Unlike other buttons on the US-1, the lamp doesn't remain lit. The MULTI MENU displays one of the Extra Control functions. (If this button is turned ON immediately after the Electone is turned ON, the Pitch display appears. Otherwise, the Extra Control function that was last in use reappears in the MULTI MENU.)

By turning the DATA dial, you can choose from eight Extra Control functions, described below.

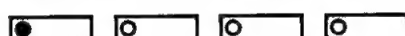
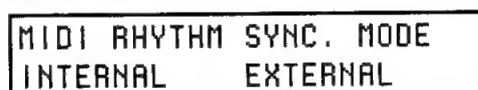
PITCH



PITCH allows you to lower or raise the pitch of the Electone in increments of approximately 0.3 Hz. This can be useful when you play along with a recording that is slightly off pitch, or with an instrument that cannot be tuned easily, such as a piano.

Press the DOWN button or UP button repeatedly to lower or raise the pitch within a 31-step range from 437.9 Hz to 446.9 Hz. Press the NORMAL button to return to the normal pitch of 440.0 Hz.

MIDI RHYTHM SYNC. MODE



Use the buttons below the MULTI MENU to select Internal or External Rhythm Sync. mode. (The lamp of the selected mode lights up.)

In Internal Sync mode, the tempo of the Rhythm conforms to the Tempo set by the TEMPO control.

In External Sync mode, the tempo of the Rhythm is determined by the external MIDI device (such as a portable keyboard, a sequencer, or a drum machine) that is connected.

NOTES:

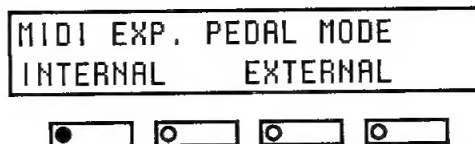
While External mode is selected, the tempo cannot be changed using the Electone's TEMPO control.

If External mode is selected but no external MIDI device is connected to the Electone, or if the external MIDI device is not compatible with this Electone, the rhythm will not run.

The selection of Internal/External Sync mode may be automatically performed by an external MIDI device in certain cases.

The built-in MUSIC DISK RECORDER (MDR) is one example of this. When playback of the MDR is started, the Electone is automatically switched to External mode, then switched back to Internal mode when MDR playback is completed. During MDR playback, therefore, the tempo cannot be changed using the Electone's TEMPO control. If you need to change the tempo in this case, use the Tempo function on the wireless remote control provided.

MIDI EXP. PEDAL MODE



Use the buttons below the MULTI MENU to select Internal or External Expression Pedal mode. (The lamp of the selected mode lights up.)

In Internal Expression Pedal mode, the expressive control of overall volume is performed by the Expression Pedal of the US-1.

In External Expression Pedal mode, the expressive control of overall volume is performed by the external MIDI-compatible device that is connected.

NOTES:

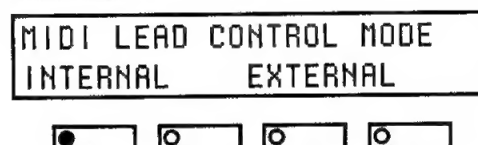
While External mode is selected, the overall volume cannot be controlled by the Expression Pedal of the US-1.

If External mode is selected but the externally connected MIDI device is not compatible with this Electone, the volume may become extremely low.

The selection of Internal or External Expression Pedal mode may be automatically performed by an external MIDI device in certain cases.

The built-in MDR is one example of this. When playback of the MDR is started, the Electone is automatically switched to External mode, then switched back to Internal mode when MDR playback is completed. During MDR playback, therefore, the volume cannot be controlled by the Expression Pedal; in addition, the REMOTE lamp, next to the MASTER VOLUME control, will be lit.

MIDI LEAD CONTROL MODE



Use the buttons below the MULTI MENU to select Internal or External Lead Control mode. (The lamp of the selected mode lights up.)

In Internal Lead Control mode, the Lead Voice will be sounded according to your performance on the Electone's Upper Keyboard as well as the Note data of MIDI Channel 1.

In External Lead Control mode, the sounding of the Lead Voice will be based solely on the Note data of MIDI Channel 4.

Whenever the Lead Control mode is changed, the following data are output via MIDI.

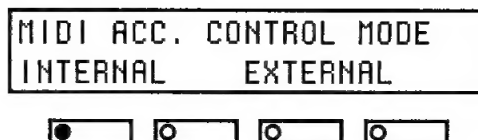
Mode Setting	MIDI Data that are Output							
Internal	F0	43	70	70	71	07	30	F7
External	F0	43	70	70	71	07	33	F7

NOTES:

While External mode is selected, the Lead Voice cannot be sounded by the Upper Keyboard.

The selection of Internal/External Lead Control mode may be automatically performed by an external MIDI-compatible device in certain cases.

MIDI ACC. CONTROL MODE



Use the buttons below the MULTI MENU to select Internal or External Accompaniment Control mode. (The lamp of the selected mode lights up.)

In Internal Accompaniment Control mode, the Accompaniment will be performed automatically according to your performance on the Electone's Lower Keyboard as well as the Note data of MIDI Channel 2.

In External Accompaniment Control mode, the sounding of the Accompaniment will be based solely on the Note data of MIDI Channel 5, regardless of the panel settings related to automatic performance.

Whenever the Accompaniment Control mode is changed, the following data are output via MIDI.

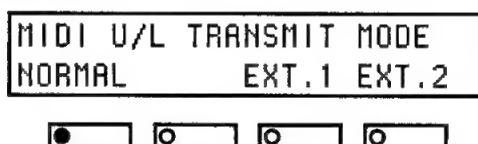
Mode Setting	MIDI Data that are Output							
Internal	F0	43	70	70	71	07	41	F7
External	F0	43	70	70	71	07	44	F7

NOTES:

While External mode is selected, the Accompaniment will not use AUTO BASS CHORD features.

The selection of Internal/External Accompaniment Control mode may be automatically performed by an external MIDI-compatible device in certain cases.

MIDI U/L TRANSMIT MODE



Use the buttons below the MULTI MENU to select one of three U/L Transmit modes: NORMAL, EXT. 1, or EXT. 2. (The lamp of the selected mode lights up.) These modes cause the Upper and Lower Keyboards to transmit on different sets of MIDI channels.

The following table shows the three preset MIDI Transmit Channels in each mode.

	NORMAL	EXT. 1	EXT. 2
Upper Keyboard	1	4	1
Lower Keyboard	2	5	15
Pedal Keyboard	3	3	3

NOTES:

The U/L Transmit mode can only be changed while no keys are being pressed on the Upper, Lower, and Pedal Keyboards.

If any key is being pressed on the Upper, Lower, or Pedal Keyboard, the request from an external MIDI-compatible device for a change in the U/L Transmit mode will be disregarded.

The selection of NORMAL/EXT. 1/EXT. 2 mode may be automatically performed by an external MIDI-compatible device in certain cases.

MIDI EXTERNAL CONTROL

MIDI EXTERNAL CONTROL			
00	01	02	03

☐ ☐ ☐ ☐

Based on the ON/OFF status of the buttons below the MULTI MENU, the following data will be output via MIDI.

Button	Status	MIDI Data that are Output							
00	ON	F0	43	70	70	72	00	7F	F7
	OFF	F0	43	70	70	72	00	00	F7
01	ON	F0	43	70	70	72	01	7F	F7
	OFF	F0	43	70	70	72	01	00	F7
02	ON	F0	43	70	70	72	02	7F	F7
	OFF	F0	43	70	70	72	02	00	F7
03	ON	F0	43	70	70	72	03	7F	F7
	OFF	F0	43	70	70	72	03	00	F7

MIDI BULK TRANSMIT

MIDI BULK TRANSMIT
TRANSMIT

☐ ☐ ☐ ☐

When MIDI Bulk Transmit is displayed in the MULTI MENU and you press the TRANSMIT button below the display, the contents of the memory (including C.S.P. data and Registration Memory) are transmitted via MIDI. The Bottom line of the display reads "TRANSMITTING" during transmission.

This feature is most useful for transferring information from one US-1 to another.

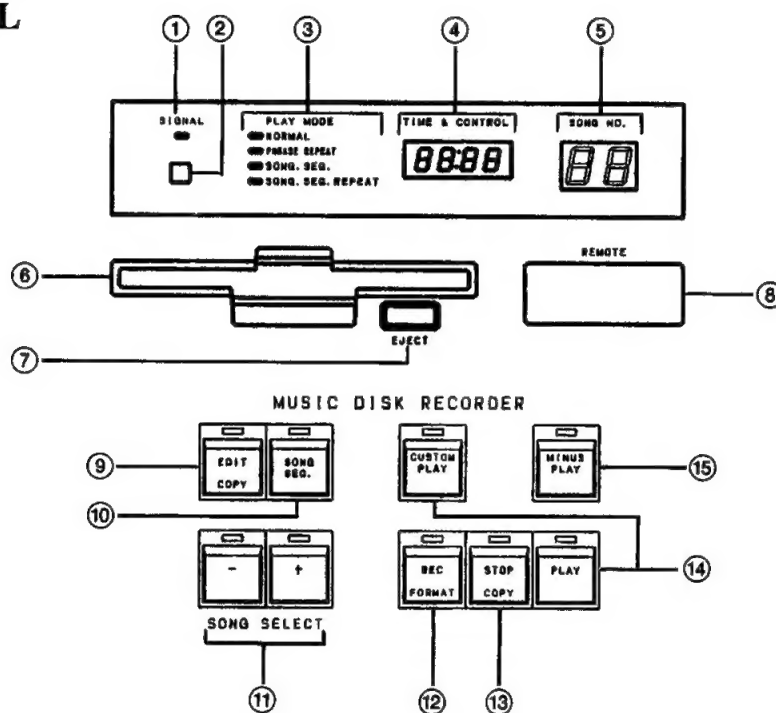
MUSIC DISK RECORDER (MDR)

The MUSIC DISK RECORDER (MDR) is a new type of recording device. Rather than recording and playing back sound, the MDR uses MIDI to record and play back digital musical information. (See page 78 for more about MIDI.) This provides several advantages over conventional audio recording, including: (1) No degradation of the sound. (2) Change tempo without affecting pitch. (3) Transpose pitch without changing tempo. (4) Use different sounds on playback than were used during recording. (5) Silence parts so that you can play along.

The MDR is provided with its own set of MIDI ports, so that it can be used with instruments other than the US-1. Throughout the description and explanation that follows, all steps necessary to use the MDR are covered, regardless of whether you leave it connected to the US-1 or use it with an external instrument.

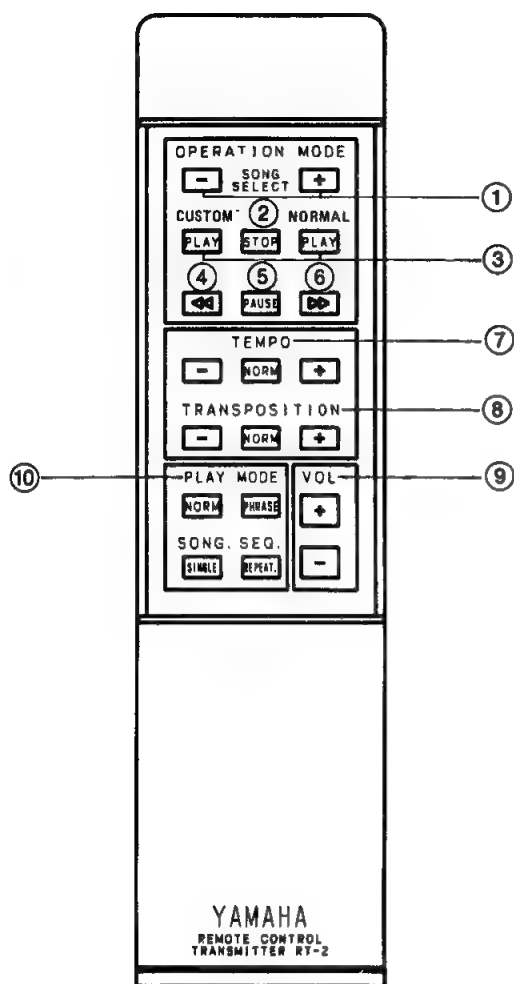
Name and Function of Each Part

FRONT PANEL



- | | |
|---|--|
| <p>① SIGNAL/ ② REMOTE CONTROL SENSOR
During remote control operation, this lamp lets you confirm the reception of Transmitter signals.</p> <p>③ PLAY MODE
The lamp in this section corresponding to the currently selected PLAY mode is lit.</p> <p>④ TIME & CONTROL
This display indicates such information as the remaining disk capacity during recording, playback count, and the EDIT modes.</p> <p>⑤ SONG NO.
This displays the song number selected by SONG SELECT (11).</p> <p>⑥ Floppy Disk Insertion Slot</p> <p>⑦ EJECT
Press this button to remove a floppy disk.</p> <p>⑧ REMOTE
This compartment is for storing the Remote Control Transmitter.</p> | <p>⑨ EDIT (COPY)
Use this button to edit recorded data, execute a MINUS ONE performance, or copy recorded songs.</p> <p>⑩ SONG SEQ. (SONG SEQUENCER)
This button sets the sequence for the playback of multiple songs.</p> <p>⑪ SONG SELECT: -/+
These buttons select the song number for recording or playback.</p> <p>⑫ REC (FORMAT)
This button is used for recording, and formatting disks.</p> <p>⑬ STOP (COPY)
This button stops recording or playback or copies songs.</p> <p>⑭ CUSTOM PLAY and PLAY
In recording or playback, press CUSTOM PLAY to transfer only performance data, or press PLAY to transfer the performance data plus the registration data.</p> <p>⑮ MINUS PLAY
Use this button to silence one or more parts so you can play along.</p> |
|---|--|

REMOTE CONTROL TRANSMITTER



- ① **SONG SELECT: -/+**
These buttons select the song number for recording or playback.
- ② **STOP**
Press this button to stop recording or playback.
- ③ **PLAY: CUSTOM/NORMAL**
During recording or playback, press CUSTOM to transfer only performance data, or press NORMAL to transfer the performance data plus the registration data.
- ④ **REWIND**
Press this button to return quickly to a previous position of the disk that is being played back.
- ⑤ **PAUSE**
Press this button to stop playback temporarily.
- ⑥ **FAST FORWARD**
Press this button to advance quickly to a later position of the disk that is being played back.
- ⑦ **TEMPO: -/NORM/+**
These buttons control the tempo during playback. Press "-" to slow down, "+" to speed up, and NORM to restore the tempo used during recording.
- ⑧ **TRANSPPOSITION: -/NORM/+**
These buttons are used for transposing the key during playback. Each time "-" or "+" is pressed, the key is lowered or raised, respectively, by a half step. Press NORM to restore the key used in recording.
- ⑨ **VOL: +/-**
These buttons control the volume during playback. Press "+" to raise the volume, and "-" to lower it.
- ⑩ **PLAY MODE**
These buttons are used to select the PLAY mode:
NORM The normal mode for recording and playback. When the power is turned ON, the MDR enters this mode.
PHRASE In this mode you can repeat the playback of a specified phrase.
SONG SEQ. These buttons control the playback of the SONG SEQUENCER. Press SINGLE for one performance, or REPEAT for repeated performances. The Song Sequence must be set at the MDR.

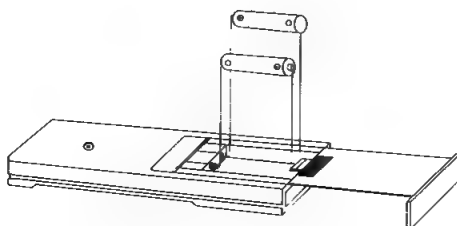
Notes on Remote Control Operation

When it is not in use, store the Transmitter in the REMOTE compartment of the MDR.

The remote control works within about 7 meters from the MDR and within 30° in either direction from the front of the sensor section. It works best directly in front of the sensor section.

The Transmitter may not function if there is an obstacle between it and the sensor section, or when intense sunlight or other intense light shines on the sensor section.

When the Transmitter batteries run down, the remote control will not work. Replace worn batteries with two new AAA batteries.

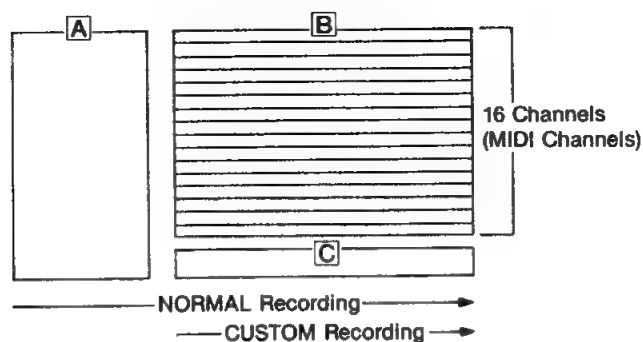


If the Transmitter will not be used for an extended period, remove the batteries.

Information on Recording and Playback

TWO RECORDING MODES

You can use two different recording modes: NORMAL and CUSTOM.



The illustration above indicates the contents that are recorded for one song number. The entire contents of A, B, and C are recorded and played back in NORMAL mode; only B and C are recorded and played back in CUSTOM mode.

Data Recorded as Type A

Type A data consists of special messages that are only transferred between the MDR and Yamaha Electones—primarily registration data. When recording a performance from another instrument, even if recording in NORMAL mode, it will be recorded as if in CUSTOM mode.

Data Recorded as Type B

Type B data consists of the contents of the performance—that is, it contains data on which notes of which keyboard have been pressed and the duration of each note. Because the MDR communicates via MIDI, you can record by assigning the data of the different keyboards to MIDI channels 1-16. With the Electone, three default channels are used: The Upper Keyboard is assigned to channel 1, the Lower Keyboard is assigned to channel 2, and the Pedal Keyboard is assigned to channel 3.

You have the choice of recording on all 16 channels at once or on one channel at a time. Furthermore, even if you record individual channels at different times, you can play them back together.

The selection of which channels will be used for recording is determined by the transmission channels of the keyboard or other device. (For details, refer to the Owner's Manual of the keyboard.) As for playback, any keyboard set to receive on the channel originally used as the transmission channel can play back the performance—even if it is not a Yamaha instrument. The timbre, however, will vary according to the instrument used.

The data recorded as type B is referred to as MIDI Channel Messages, and also includes such data as program changes (which are Registration Memory Numbers on the US-1) and control changes.

Data Recorded as Type C

Type C data encompasses the categories of MIDI System Realtime and System Common (which include such things as clock messages, for synchronization of performance and control over tempo) and System Exclusive (which consists of messages that are specific to the instrument being used). The System Exclusive messages transmitted and received by the US-1 are detailed in the section of this manual on MIDI, beginning on page 78.

Type C messages cannot be altered using the EDIT operations.

UP TO 16 SONGS

As with a cassette tape, there is no limit to the recording time of one song if it is within the memory capacity of the disk. One disk can be used to record up to 16 songs, if the capacity allows.

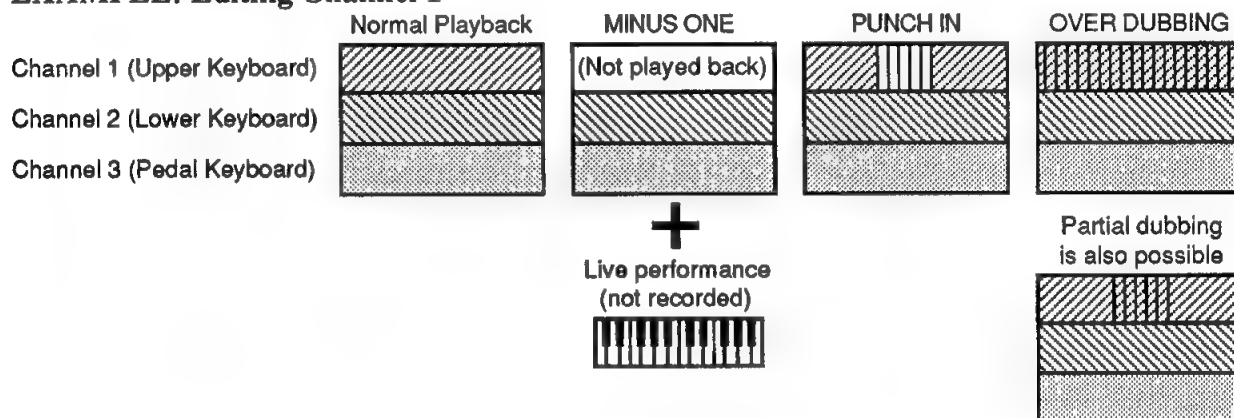
The recording time is not fixed, but varies according to the volume of type A data, the performance tempo, and the content of the performance itself (many notes or few). When recording, the display shows the remaining capacity of the disk to guide you. Note that one floppy disk has a capacity of 634 kilobytes.

EDIT THE RECORDED PERFORMANCE

The only data that can be edited are type B (note data); each MIDI channel can be edited separately.

There are three EDIT modes available: MINUS ONE mode plays back the data of all channels except one, PUNCH IN/OUT Recording mode allows you to make a "spot correction" on a given MIDI channel, and OVER DUBBING mode layers multiple performances onto the same channel.

EXAMPLE: Editing Channel 1



FIVE PLAYBACK MODES

- NORMAL mode:** Performs playback of individual songs, selected by Song Number.
- MINUS PLAY mode:** Allows you to eliminate one or more parts from the playback, so you can play them live.
- PHRASE REPEAT mode:** Performs repeated playback of a specified phrase of the song.
- SONG SEQ. mode:** Performs consecutive playback of songs in the sequence you choose (up to 16 songs).
- SONG SEQ. REPEAT mode:** Performs repeated playback of SONG SEQ. mode.

NOTE:

If an operation is unable to be completed successfully, the MDR will display a message in the TIME & CONTROL window to indicate the problem. These messages, which begin with the letters "cF" (Confirm), are explained at the end of this section, on page 76, entitled "Error Message Display."

About Floppy Disks

PRECAUTION ON REMOVAL

NEVER remove a disk while the PLAY (NORMAL or CUSTOM), RECORD, or SONG SEQ. lamp is lit. Such action can destroy data stored on the disk or damage the disk itself.

HANDLING

Use only 3.5" double-sided double-density double-track floppy disks with the MDR.

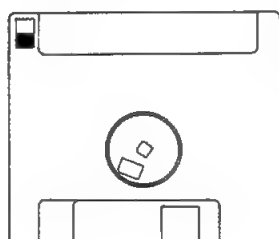
Never touch the surface of the disk itself (never push the metal shutter back to expose the surface of the disk) or apply unnecessary force when inserting a disk.

Don't place disks near strong magnetic fields, such as those produced by speakers or TVs.

After you finish using a disk, always place it in the case provided and store it where it will not be exposed to direct sunlight, high temperatures, or excessive dampness.

WRITE-PROTECTION

A write-protection tab is provided to protect data recorded on the floppy disk. If a disk contains important data that you do not wish to be erased, move the tab to the top position (when holding the disk as shown in the illustration) to prevent unintentional erasure of or recording over the data.



On a disk that is write-protected, it is impossible not only to record, but also to perform EDIT operations (except MINUS ONE editing), PHRASE REPEAT, SONG SEQ., copying of a song, and so on.

INSERTING AND FORMATTING

A new floppy disk must be processed for compatibility with the MDR before performance data can be recorded on it. This is called "formatting," and need be done ONLY with a new disk, or when you wish to erase everything on a disk (formatting ERASES ALL DATA previously recorded on a disk).

Step 1: Immediately after switching the US-1 power ON, and before pressing any other buttons, press the RECORD (FORMAT) button and hold it for several seconds.

The TIME & CONTROL display will show "----". Keep holding the RECORD button until the RECORD lamp begins flashing (about 10 seconds).

NOTE: After switching the power ON, if you release the RECORD button before the RECORD lamp begins flashing, you cannot format a disk. If this happens, switch the power OFF and start over.

Step 2: Insert a floppy disk.

Hold the disk with the label-side UP (the side with the small metal hub should be DOWN) and the metal shutter AWAY from you. Insert the disk into the insertion slot and push it forward until it locks into place.

If you wish to remove the disk, press EJECT.

Step 3: Press the RECORD (FORMAT) button.

The RECORD lamp lights up and formatting begins. After about one minute, disk formatting is completed, the RECORD lamp begins flashing again, and the MDR enters standby mode.

NOTE: At this time, if you replace the floppy disk and press the RECORD button again, you can format multiple floppy disks without starting from Step 1.

Step 4: Press the STOP button.

Formatting is now completed.

If you wish to format another disk now, switch the power OFF and start from Step 1.

NOTE: A disk that is write-protected cannot be formatted. To enable formatting, reset the write-protect tab from the "protect" position to the "write" position.

Recording

With the power ON, insert a formatted disk.

Step 1: Prepare the instrument for playing.

Set the voices, effects, rhythm, and so on. If you will be using data from a Registration Pack, transfer that data at this time (see page 52).

If you use REGISTRATION MEMORY, store the required registrations.

Set RHYTHM START and SYNCHRO START to OFF.

Step 2: Using SONG SELECT, select the song number to which you wish to record.

While viewing the SONG NO. display, press SONG SELECT “+” or “-” as necessary to select a number from 1 to 16. Song Number 1 is selected automatically when the power is switched ON.

Each time “+” is pressed, the value in the SONG NO. display increases by one. It returns to 1 when pressed again after 16. Each time “-” is pressed, the value decreases by one, changing from 1 to 16 to 15, etc.

When recording to a Song Number that has already been recorded, the previously recorded song will be erased.

Step 3: Press the RECORD button.

The RECORD lamp lights up and the PLAY and CUSTOM PLAY lamps begin flashing.

Step 4: Press the PLAY or CUSTOM PLAY button to start recording.

PLAY: First, data such as the REGISTRATION MEMORY data are recorded, and nothing is shown in the TIME & CONTROL display during that time. After the TIME & CONTROL display changes to display the remaining memory capacity of the disk, switch the Rhythm START or SYNCHRO START to ON if required, then begin playing.

CUSTOM PLAY: After the TIME & CONTROL display shows the remaining memory capacity of the disk, switch the Rhythm START or SYNCHRO START to ON if required, then begin playing.

When recording a performance, the display of the remaining memory capacity of the disk shown in the TIME & CONTROL display is reduced by increments of two, and begins blinking when the remaining capacity goes below 8.

When using a Registration Pack, reading to and writing from the pack cannot be performed during recording.

Step 5: When you finish playing, press the STOP button.

Before recording the next song, be sure to change the Song Number, using SONG SELECT.

During recording, NEVER switch the power OFF or press the EJECT button. Furthermore, do not press EJECT from the time you press STOP until the RECORD lamp goes out. Ignoring these precautions may result in an imperfect recording.

Playback

NORMAL MODE

Playback can be controlled from either the MDR panel or the remote control.

Step 1: Prepare the instrument for playback.

Switch the power of the instrument ON, then adjust its volume level.

Check that MIDI reception is set to the same channel that was used as the transmission channel during recording. (This usually won't be necessary with the US-1, since the MIDI Channels are preset for you.)

When recording was done in CUSTOM mode or playback will be in CUSTOM mode, set the registrations (such as the VOICE and RHYTHM selectors) that cannot be transferred as program changes or control changes.

Step 2: Select the Song Number to be played back, using SONG SELECT.

While viewing the SONG NO. display, press SONG SELECT button "+" or "-" as necessary to select the song you wish to play back.

Playback is performed separately for each Song Number. For consecutive playback of multiple songs, use SONG SEQUENCER mode.

Step 3: Press PLAY or CUSTOM PLAY.

PLAY: First, the recorded registration data and so on are sent to the Electone, and nothing is shown in the TIME & CONTROL display during that time. After 5-10 seconds, the TIME & CONTROL display returns to "00:00", then is incremented by one consecutively as playback occurs. When the song ends, the MDR automatically stops and the disk returns to its initial position.

CUSTOM PLAY: The TIME & CONTROL value is incremented by one consecutively as playback occurs. When the song ends, the MDR automatically stops and the disk returns to its initial position.

NOTES:

CAUTION: Before pressing PLAY, be sure that you wish to send the registration data and other data from the disk, because data stored in REGISTRATION MEMORY and other data of the Electone will automatically be replaced by the data from the disk.

After "00:00" appears in the TIME & CONTROL display, playback may not always begin immediately. The number of seconds required should equal the time required during recording when beginning a performance from standby mode.

You can also play the instrument along with the playback. But if, at any given time, the number of notes you play plus the number of notes the MDR plays exceeds the number of notes the keyboard can produce, some notes will not sound.

If you press STOP to stop playback before the end, it will automatically return to the beginning of the song. If you wish to restart from the place you stop, press PAUSE on the remote control instead of STOP.

Even if you play back on a different instrument than you recorded on, the performance data can be received if the MIDI channels are set identically. But since System Exclusive messages recorded by one instrument generally will not be received by a different instrument, playback may be unsatisfactory in some such cases.

REMOTE CONTROL OPERATION DURING PLAYBACK

When the Remote Control Transmitter is used, the following operations can be performed in addition to those that are available from the MDR panel. Fast Reverse, Fast Forward, and PAUSE can be performed during playback only; TEMPO, TRANSPOSITION, and VOL can be performed either before or during playback.

Fast Reverse (◀◀), Fast Forward (▶▶), PAUSE

When the Fast Reverse (◀◀) or Fast Forward (▶▶) button is pressed during playback, playback is interrupted and a Fast Reverse or Fast Forward is performed during the time the button is pressed. Hold the button while viewing the TIME & CONTROL display, releasing the button at the point at which you wish playback to resume. At this time, the MDR enters PAUSE mode so that you can again perform Fast Reverse or Fast Forward as required. To resume playback, press the flashing PLAY or CUSTOM PLAY button on the MDR, or the corresponding NORMAL PLAY or CUSTOM PLAY button on the Remote Control.

When PAUSE is pressed during playback, playback is temporarily stopped. Press PAUSE once more to resume playback.

After pressing PAUSE to enter PAUSE mode, you cannot perform Fast Reverse or Fast Forward.

If Fast Reverse or Fast Forward is performed with instruments other than the US-1 or HX-Series Electone models, Auto Rhythm may not synchronize with the performance, or may not be sounded.

TEMPO

Press the TEMPO buttons to change the tempo during playback. Each time “-” is pressed, it slows down the tempo; each time “+” is pressed, it speeds it up. Pressing NORM in the TEMPO section returns to the tempo used for recording.

For a short while, the new tempo is shown in the TIME & CONTROL display, as a percentage of the tempo used for recording, which is considered 100%. Although the range of variation differs with the functions of the instrument being played back, it is approximately 50-200%.

As long as EJECT is not pressed and the power is not switched OFF, the music will be played back at the changed tempo, even if a different Song Number is played back.

If the MIDI instrument being played back does not allow its timing clock to be controlled via MIDI, the Auto Rhythm may not synchronize with the playback. (This is not a problem with the US-1.)

TRANSPOSITION

Press the TRANSPOSITION buttons to change the key of the recorded song during playback. Each time “-” is pressed, the key is lowered a half step; each time “+” is pressed, it is raised a half step. The key can be transposed as much as one octave up or down, and will return to the original key upon pressing NORM in the TRANSPOSITION section.

After transposition, the notes higher than the highest note of the instrument will be sounded one octave lower, and the notes lower than the lowest note will be sounded one octave higher. (In rare cases, depending on the instrument being played, some notes may not sound.)

As long as EJECT is not pressed and the power is not switched OFF, the music will be played back transposed, even if a different Song Number is played back.

VOL (Volume)

Press the VOL buttons to change the volume level during playback. Each time “+” is pressed, it raises the volume; each time “-” is pressed, it lowers it.

This volume control can only be performed for the US-1 or HX-Series Electone models.

PHRASE REPEAT MODE

This mode allows you to play back a given section of a recorded song repeatedly. It can only be performed from the Remote Control.

Step 1: Start playback.

After selecting the Song Number using SONG SELECT, press (NORMAL) PLAY or CUSTOM PLAY to start playback.

Step 2: Press the PHRASE button in the PLAY MODE section of the Transmitter at the beginning of the phrase you wish to play back repeatedly.

While listening to the performance being played back, you can specify the phrase you wish to repeat. First, press the PHRASE button on the Remote Control Transmitter at the exact beginning of the phrase.

The PHRASE REPEAT lamp of the PLAY MODE section on the MDR begins flashing.

In this status, playback of the performance continues.

NOTE: To perform PHRASE REPEAT from the beginning of a song, press the PHRASE button immediately after pressing (NORMAL) PLAY or CUSTOM PLAY to start playback.

Step 3: Press the PHRASE button again at the end of the phrase you wish to repeat.

Playback will stop briefly, then return to the beginning of the specified phrase and play back repeatedly.

The PHRASE REPEAT lamp in the PLAY MODE section of the MDR lights up continuously and the NORMAL lamp goes out. The TIME & CONTROL display also returns to the count for the beginning of the specified phrase.

NOTES:

If the end of the phrase is not specified, the end of the song becomes the end of the repeated phrase.

When PHRASE REPEAT is performed with instruments other than the US-1 or HX-Series Electone models, Auto Rhythm may not synchronize with the performance.

Step 4: To stop PHRASE REPEAT, press NORM in the PLAY MODE section of the Transmitter.

When returning to NORMAL mode from PHRASE REPEAT mode, playback will stop at the end of the specified phrase.

(When STOP is pressed while in the PHRASE REPEAT mode, the MDR immediately skips back to the beginning of the phrase and continues playing back without stopping.)

If, after stopping, you wish to repeat the same phrase again, press the PHRASE button, then one of the PLAY buttons (NORMAL or CUSTOM). Pressing either PLAY button causes the MDR to enter CUSTOM Playback mode.

Once a phrase is specified, it is recorded on the disk (if the disk is not write-protected) and can be retrieved at any time as long as a new phrase has not been specified for that song.

If the PHRASE button is pressed and playback is started without a phrase having been specified, the entire song will be played back repeatedly.

During PHRASE REPEAT, Fast Reverse and Fast Forward can be performed only within the length of the specified phrase. Also, they can only be performed while the phrase is actually playing.

SONG SEQ. MODE, SONG SEQ. REPEAT MODE

Use of the SONG SEQUENCER function allows you to play back recorded songs consecutively, in any order you desire. Setting of the Song Sequence is performed at the MDR. Playback of the sequence can be controlled by the Remote Control Transmitter only.

Setting the Song Sequence

Step 1: Press the SONG SEQ. button.

The lamp of the SONG SEQ. button lights up, and the lamps of the SONG SELECT “+” and “-” and RECORD buttons will flash.

The TIME & CONTROL display changes to “01.--”.

NOTE: If a Song Sequence has already been set, the Song Number set as the first song of the sequence will be displayed instead of “--”.

Step 2: Use SONG SELECT buttons “+” and “-” as necessary to select the first song of the sequence to be played back.

Select the Song Number while viewing the SONG NO. display.

Step 3: Press the RECORD button.

After selecting the Song Number, press the RECORD button to register it.

When the RECORD button is pressed, the TIME & CONTROL display automatically changes to “02.--”. At that point, select the second Song Number of the playback sequence, then press RECORD again. Repeat Steps 2 and 3 to register all of the Song Numbers you wish to play back, in the order you desire.

You can set as many as 16 songs in the sequence. You can include the same Song Number more than once in a sequence, if you wish.

Step 4: Register the end of the Song Sequence.

Press SONG SELECT buttons “+” and “-” as necessary to display “--” in the SONG NO. display (between Song Numbers 16 and 01), then press RECORD.

If all 16 places in the Song Sequence are filled, this operation is not necessary.

Step 5: Press the STOP button.

Registration is now completed.

The registered Song Sequence will be saved onto the disk (if it is not write-protected).

Checking and Editing the Song Sequence

You can check the contents of the Song Sequence by pressing the SONG SEQ. button. In the TIME & CONTROL display, the Sequence Number is shown on the left and the Song Number is shown on the right, with the next song in the sequence being displayed each time SONG SEQ. is pressed.

You may wish to edit a Song Sequence. You can change Song Sequence data by following Steps 2 and 3 on the previous page. Use the SONG SELECT buttons "+" and "-" to change the Song Number, and press the RECORD button to register the change.

When you are done making changes, press STOP if the end-point of the Song Sequence is unchanged. If you wish to make a new ending, you need to register the "--" where you desire the new ending to be.

Playing Back the Song Sequence

Step 1: Using the Remote Control, press either SINGLE or REPEAT in the SONG SEQ. section.

SINGLE: Press this button when you wish to play back the Song Sequence once.

REPEAT: Press this button when you wish to play back the Song Sequence repeatedly.

The lamp of the selected PLAY MODE lights up, and the PLAY and CUSTOM PLAY lamps begin flashing.

Step 2: Press (NORMAL) PLAY or CUSTOM PLAY to start playback.

The Song Number registered as the first song of the sequence is shown in the SONG NO. display, and playback is started.

Step 3: To stop playback, press NORM in the PLAY MODE section of the Transmitter.

If SINGLE was selected to start playback, NORMAL mode is automatically resumed after the performance is completed, then playback is stopped.

If REPEAT was selected to start playback, return the PLAY MODE to NORMAL by pressing the NORM button in the PLAY MODE section of the Remote Control Transmitter, then press the STOP button.

When the STOP button is pressed while still in SONG SEQ. mode, the playback of the current song is stopped, then playback recommences from the song set as the next one in the sequence.

NOTE: In SONG SEQ. mode, the PHRASE REPEAT and EDIT operations cannot be performed.

Editing

Three EDIT modes are provided: MINUS ONE Performance, PUNCH IN/OUT Recording (REPLACE), and OVER DUBBING.

BEFORE ENTERING THE EDIT MODES

Step 1: Prepare the musical instrument to be played.

So that both recording and playback can be done in EDIT mode, make sure the MDR OUT is connected to the MIDI IN of the instrument, and the MDR IN to the MIDI OUT of the instrument. (If you are using the US-1, these connections are the normal ones for operating the MDR.)

Confirm that the MIDI Reception Channel is the same as that used for recording.

If recording was done in CUSTOM mode, manually set the registrations (such as the Voice and Rhythm selectors, etc.) that cannot be transferred as program changes or control changes.

Step 2: Use the SONG SELECT buttons to select the Song Number you wish to edit.

You cannot select a Song Number after any of the EDIT modes is entered.

Step 3: Press the EDIT button.

The EDIT lamp lights up, and the lamps of the SONG SEQ. and SONG SELECT (“+”/“-”) buttons begin flashing.

The TIME & CONTROL display shows “01”.

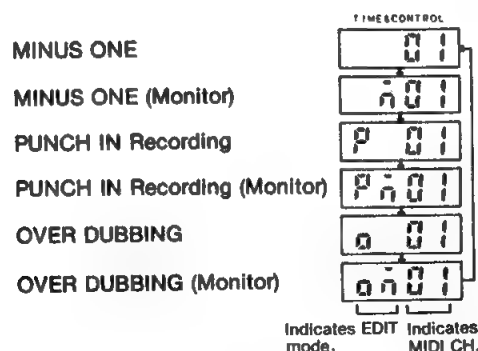
NOTES:

When the PLAY MODE is set to PHRASE REPEAT or SONG SEQ., the EDIT button cannot be switched ON. In such a case, return to NORMAL PLAY mode, then press EDIT.

The EDIT button cannot be switched ON during playback of a song.

Step 4: Use the SONG SEQ. button to select the desired EDIT mode.

Each time the SONG SEQ. button is pressed, the TIME & CONTROL display changes, as in the illustration below, to indicate which EDIT mode is being selected.



The MONITOR version of each EDIT mode is useful when editing with a keyboard that has no sound source, such as a controller keyboard. When in MONITOR mode, the realtime performance data received at the MDR IN port are sent out the MDR OUT port in addition to the playback data usually transmitted; in this way, keys pressed on the keyboard controller will be sounded on a Tone Module or other device.

MINUS ONE PERFORMANCE MODE

This is a play-along mode; it will not change the recorded data.

Step 5: Use the SONG SELECT buttons to select the MIDI Channel of the section that you do NOT wish to be played back.

If you play the keys of the connected keyboard at this time, the Transmission Channel of the keyboard is displayed momentarily in the TIME & CONTROL display, letting you check the Channel Number (common to all modes).

Step 6: Press (NORMAL) PLAY or CUSTOM PLAY to start playback.

Playback is begun, omitting the part recorded on the MIDI Channel selected in Step 5. You can play the missing part yourself.

Playback can also be performed in PHRASE REPEAT mode.

When playback is finished, the MDR stops automatically.

Step 7: Press the EDIT button once more to return to NORMAL mode.

If you wish to set another Song Number for MINUS ONE performance, return to NORMAL mode, then start this procedure again from Step 1 on the previous page.

PUNCH IN/OUT RECORDING MODE (REPLACE MODE)

Step 5: After using the SONG SEQ. button to select the PUNCH IN Recording mode, select the MIDI Channel of the section containing the performance data you wish to edit, using the SONG SELECT (“+”/“-”) buttons.

Step 6: Press (NORMAL) PLAY or CUSTOM PLAY to start playback.

The RECORD lamp begins flashing, signifying that the MDR is in the standby status for PUNCH IN Recording.

The count value of the TIME & CONTROL display is identical to the count value during normal playback.

Step 7: While listening to the playback, press the RECORD button at the beginning of the section you wish to edit, then play the keyboard.

When the RECORD button is pressed, playback of the specified MIDI Channel is disabled, and the data you play on the keyboard will be recorded.

When the RECORD button is pressed *before* the (NORMAL) PLAY or CUSTOM PLAY buttons, the REPLACE mode is entered and you can begin recording again from the beginning of the song.

Step 8: After PUNCH IN Recording is completed, press (NORMAL) PLAY or CUSTOM PLAY once more to perform PUNCH OUT.

During PUNCH IN Recording, if the flashing PLAY or CUSTOM PLAY button is pressed, the MDR returns to PUNCH IN standby status and resumes playback.

During playback, partial editing of the performance can be done any number of times using PUNCH IN and PUNCH OUT.

When the song ends, the MDR stops automatically.

Step 9: When the EDIT button is pressed once more, the MDR returns to NORMAL mode.

When you wish to play back the edited performance, return to NORMAL mode, then press (NORMAL) PLAY or CUSTOM PLAY.

OVER DUBBING MODE

Step 5: Use the SONG SEQ. button to select the OVER DUBBING mode, then select the MIDI Channel of the part onto which you wish to layer multiple performances using the SONG SELECT buttons.

Step 6: Press the RECORD button.

The PLAY and CUSTOM PLAY lamps begin flashing.

Step 7: Press (NORMAL) PLAY or CUSTOM PLAY to start playback. Next, play the keyboard along with the playback.

Using the keyboard with the selected MIDI Channel, record additional sections to be over dubbed.

It is also possible to perform OVER DUBBING from an intermediate point of the song by first starting playback using (NORMAL) PLAY or CUSTOM PLAY, then pressing RECORD at the desired point.

CAUTION: Once you over dub material, it becomes impossible to delete or re-record that material alone—it is mixed with the material recorded previously.

When the song ends, the MDR stops automatically.

Step 8: When the EDIT button is pressed once more, the MDR returns to NORMAL mode.

To play back the edited performance, return to NORMAL mode, then press (NORMAL) PLAY or CUSTOM PLAY.

NOTES:

You can perform any number of dubbing operations on the same MIDI Channel. Note that all parts on a single channel will be played using the same voices. Also, if the total number of notes recorded for any given moment exceeds what the instrument can sound, some notes will not sound.

In PUNCH IN Recording or OVER DUBBING mode, you can record onto MIDI Channels on which nothing has been recorded previously, to make the most of 16-channel multiple-track recording.

CAUTION: In PUNCH IN Recording or OVER DUBBING mode, editing cannot be performed if the remaining memory capacity of the disk is too small. Although the remaining capacity required for editing varies with the content of the performance, as a general rule it should be roughly at least 1.5 to 2 times the amount of data contained in the song to be edited.

Minus Play



Step 1: Press the MINUS PLAY button to inhibit playback of the desired keyboard(s) during playback by the MDR.

MINUS PLAY is similar to MINUS ONE performance, with two differences:

It is restricted to use with the US-1 (whereas MINUS ONE performance can be used with an external MIDI instrument).

You can silence more than one part at a time.

When you turn ON the MINUS PLAY button, the MULTI MENU displays the keyboard(s) for which playback is currently inhibited.

Step 2: Use the buttons below the MULTI MENU to select the keyboard(s) for which you wish to inhibit playback.

MDR MINUS PLAY
UPPER LOWER PEDALS



The lamps of the selected keyboards light up.

NOTE: If all the lamps below the MULTI MENU are turned OFF, playback will be permitted at all keyboards; in this case, the ON/OFF status of the MINUS PLAY lamp will have no effect.

Step 3: Press (NORMAL) PLAY or CUSTOM PLAY.

Playback of all parts except the ones you selected will begin.

Other Operations

COPYING A SONG

With the MDR, you can copy a song to a different Song Number on the same disk. This is useful for making a "safety" copy prior to PUNCH IN or OVER DUBBING.

Step 1: Use the SONG SELECT buttons to display an unrecorded Song Number in the SONG NO. display.

The selected Song Number becomes the destination of the copy operation. If the selected Song Number already contains any recorded data, the copy operation cannot be performed.

If no unrecorded Song Numbers are available, delete all unnecessary data from the disk (see "Deleting Data," on the next page).

Step 2: While pressing the STOP (COPY) button, press the EDIT (COPY) button.

The SONG SELECT lamps and RECORD lamp begin flashing.

Step 3: Use the SONG SELECT (“+”/“-”) buttons to select the Song Number to be copied.

The TIME & CONTROL display indicates the Song Number recorded with the performance data you wish to copy.

Step 4: Press the RECORD button.

The RECORD lamp lights up and copying is begun. After several seconds, copying stops automatically, and the TIME & CONTROL display shows “00:00”.

The copy operation cannot be stopped before completion, even by pressing the STOP button.

DELETING DATA

Song data that are no longer needed can be deleted by Song Number.

Step 1: Use the SONG SELECT (“+”/“-”) buttons to display the Song Number you wish to delete in the SONG NO. display.

Step 2: While pressing the STOP button, press the EDIT button.

The SONG SELECT (“+”/“-”) lamps and the RECORD lamp begin flashing.

Step 3: Use the SONG SELECT (“+”/“-”) buttons to display “--” in the TIME & CONTROL display (“--” is located between Song Numbers 16 and 01).

Step 4: Press the RECORD button.

The RECORD lamp lights up and the data of the selected Song Number are deleted. After several seconds, the deletion operation ends automatically.

The remaining memory capacity of the disk will increase corresponding to the amount of data deleted.

Error Message Display

If an operation is unable to be completed successfully, “cF” (“confirm”) is displayed in the TIME & CONTROL display as shown below, indicating the cause of the error by a numeric value. In such a case, perform the steps listed in the table to remedy the situation. Note that when any button is pressed, this display will be cleared.

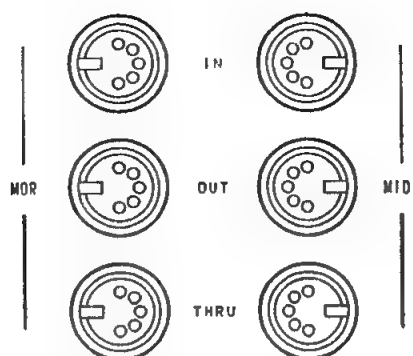
Display	Cause and Remedy
cF01	The disk is improperly inserted. Remove the disk and re-insert it. If “E 01” is displayed despite correct disk insertion, see your Yamaha dealer.
cF02	The disk has not been formatted for the MDR. See page 64 (“Inserting and Formatting”). The display of this message for a formatted disk indicates some defect in the disk, so replace the disk with a new one.
cF03	Recording cannot be performed because the disk is write-protected. Reset the write-protect tab to enable recording, then redo the recording operation.
cF04	No performance is recorded in the selected Song Number. Confirm the Song Number.
cF05	Copying cannot be performed because there are data recorded in the selected Song Number. Change the Song Number or delete the unnecessary data, then redo the copying operation.
cF06	The performance cannot be played back correctly because of a disk defect or a tempo control setting that is too fast. Slow down the tempo by remote control, then perform playback again.
cF07	The disk is defective. Replace the disk with a new formatted one and perform recording again.

MDR Troubleshooting

Symptom	Cause and Remedy
Playback is stopped after one song.	Recording and playback are designed to function only for single Song Numbers. To perform consecutive playback of songs, use the SONG SEQUENCER function.
Auto Rhythm was started but stopped at the start of recording. The rhythm cannot be started at the start of recording.	The MDR is designed so that Auto Rhythm START and SYNCHRO START will automatically be switched OFF when recording is started. Also, START and SYNCHRO START cannot be switched ON during the recording of registrations and other data in NORMAL mode when the TIME & CONTROL display is off.
Recording or playback cannot be performed.	Recording and playback are sometimes disabled by mistaken operation, use of an incompatible disk or playback model, and so on. Refer to page 76 ("Error Message Display"). Playback cannot occur unless the MIDI Receive Channel is set to the same Channel used for recording.
Recording or playback is not temporarily stopped even if STOP is pressed.	The MDR is designed to return to the beginning of the song without stopping temporarily, even if STOP is pressed. To stop recording or playback temporarily, press PAUSE on the Remote Control Transmitter. Note that PAUSE mode cannot be entered during recording.
Operation is stopped during recording or editing.	The amount of data recorded on the disk is close to the capacity of the disk. Either replace the disk or delete unnecessary data from the current disk.
Playback does not stop even if STOP is pressed.	In PHRASE REPEAT or SONG SEQ. mode, playback is not stopped even if STOP is pressed. Return to NORMAL PLAY mode using the Remote Control Transmitter, then press STOP.
The tempo control of the keyboard does not function during playback.	During playback, a message is sent to the connected keyboard so it will automatically conform to the tempo established by the MDR. To control the tempo, use the TEMPO buttons on the Remote Control Transmitter.
The performance played back is different from the one recorded.	Depending on the functions of the keyboard used for recording, some data may not be sent by MIDI, or the use of such functions may not permit recording to the MDR. Refer to the MIDI Implementation Chart of the keyboard in use (page 79 for the US-1).
When Fast Reverse or Fast Forward is performed, Auto Rhythm and the performance are not synchronized.	During recording or playback using a keyboard other than the US-1 or an HX-Series Electone model, avoid performing Fast Reverse and Fast Forward as much as possible. Also, the volume of such an instrument cannot be controlled by remote control.
After changing a voice during editing, that voice is also changed in other registrations. A voice was changed but remains unchanged during playback.	Data for the REGISTRATION MEMORY cannot be partially sent. Also, when registrations are changed at the Electone panel, only the corresponding Registration Numbers are recorded.

MIDI

Your Yamaha Electone is equipped with MIDI (Musical Instrument Digital Interface), which allows it to play, and be played by, other electronic musical instruments. There are two sets of MIDI jacks, or ports, located on the underside of the lower keyboard. One set is for the Electone itself, and the other is for the MUSIC DISK RECORDER (MDR).



OUT sends musical information.

IN receives musical information.

THRU passes along a duplicate of the information received by IN.

The Electone and MDR are usually connected as follows:

MIDI OUT to MDR IN (allows recording)

MDR OUT to MIDI IN (allows playback)

MIDI MESSAGES

It is important to understand that what is sent and received is information rather than sound. This information can be divided into several different categories. The most important of these that apply to the US-1 are summarized below.

Channel Messages: These messages can be directed to one of the 16 MIDI Channels. MIDI Channels allow different information to be directed to different instruments, or to different parts of one instrument (such as the Upper, Lower, and Pedal Keyboards of the US-1). Channel Messages include Note On and Note Off (starting and stopping notes), Velocity (how hard a note is to be played), After Touch (pressure on the keys after a note has been struck), Pitch Bender, Control Change (including volume), and Program Change (changes in the sounds used; this corresponds to Registration Memory Numbers on the US-1).

System Exclusive Messages: System messages are not restricted to a single MIDI Channel, but are sent to all connected instruments in the MIDI system. System Exclusive Messages contain information specific to a certain brand, series, or model of instruments. Most of the tables of messages in this section of the Owner's Manual are System Exclusive Messages for the US-1 or other Electones.

System Real`Time Messages: These messages concern starting, stopping, and tempo control of sequencers, drum machines, and Auto Rhythm.

The MIDI Implementation Chart on the following page shows how the US-1 behaves with regard to these different categories of MIDI messages.

MIDI IMPLEMENTATION CHART

Model: US-1 Electone

Version: 1.0

Function		Transmitted	Recognized	Remarks
Basic Channel	Default	1	1	UPPER
		2	2	LOWER
		3	3	PEDAL
	Changes	16	15	KEYBOARD PERC.
		4	16	CONTROL
		5	4	UPPER
		5	LOWER	
			LEAD	
			ARPEGGIO	
Mode	Default Messages Altered	Mode 3 X *****	Mode 3 X X	
Note Number:		36-96 X X X *****	36-96 36-96 36-96 36-96 36-96	Upper, Lower, Pedal Lead Arpeggio Keyboard Perc. UK/LK/PK
Velocity	Note ON Note OFF	9nH,v=1-127 9nH,v=0	9nH,v=1-127 9nH,v=0, 8nH	SEE NOTE 1
After Touch	Keys Ch's	X O	X O	SEE NOTE 1
Pitch Bender		X	O	
Control Change	1 4 11 64	X O O O	O O O O	Modulation 2nd Expression Expression Pedal Knee Lever
Prog Change:	True #	0-15 *****	0-15 0-15	REGISTRATION
System Exclusive		O *	O *	
System :	Song Pos	X **	X **	(FA,FC)
	Song Sel	X	X	
Common :	Tune	X	X	
System :	Clock	O	O	
Real Time :	Commands	O	O	
Aux :	Local ON/OFF	X	X	
	All Notes OFF	X	O	
Mes- :	Active Sense	O	O	
sages :	Reset	X	O	
Notes : 1 CHANNEL NUMBER DEPENDS ON DEFAULT CHANNEL				
* Refer to Exclusive message list				
** Recognize only when External mode				

Mode 1 : OMNI ON, POLY
Mode 3 : OMNI OFF, POLY

Mode 2 : OMNI ON, MONO
Mode 4 : OMNI OFF, MONO

O : Yes
X : No

The tables on the following pages detail the MIDI messages sent and received by the Electone. Within these tables, the following abbreviations are used:

Tm = Transmitted
 Rec = Received
 X = No
 O = Yes

CHANNEL MESSAGES

Key ON

MIDI Signal	Function	Trn	Rec	Remarks
80H,nnH,vvH	Upper Keyboard OFF	X	O	
81H,nnH,vvH	Lower Keyboard OFF	X	O	
82H,nnH,vvH	Pedal Keyboard OFF	X	O	
83H,nnH,vvH	LEAD OFF	X	O	LEAD CONTROL: Received in EXTERNAL mode only.
84H,nnH,vvH	ACC. OFF	X	O	ACC. CONTROL: Received in EXTERNAL mode only.
8EH,nnH,vvH	Keyboard Perc. OFF	X	O	

nnH: Note Nos. 36-96 (corresponding to 61 keys)

vvH: Velocity 00H-7FH

Key ON/OFF

MIDI Signal	Function	Trn	Rec	Remarks
90H,nnH,vvH	Upper Keyboard ON/OFF	O	O	
91H,nnH,vvH	Lower Keyboard ON/OFF	O	O	
92H,nnH,vvH	Pedal Keyboard ON/OFF	O	O	
93H,nnH,vvH	LEAD ON/OFF	O	O	LEAD CONTROL: Received in EXTERNAL mode only. U&L TRANSMIT: Sent in EXT. 1 mode only.
94H,nnH,vvH	ACC. ON/OFF	O	O	ACC. CONTROL: Received in EXTERNAL mode only. U&L TRANSMIT: Sent in EXT. 1 mode only.
9EH,nnH,vvH	Keyboard Perc. ON/OFF	O	O	Sounded regardless of its ON/OFF status. U&L TRANSMIT: Sent in EXT. 2 mode only.

nnH: Note Nos. 36-96 (corresponding to 61 keys)

vvH: Velocity 00H (OFF), 01H-7FH (ON)

Expression Pedal Change

MIDI Signal	Function	Trn	Rec	Remarks
BFH,0BH,nnH	Expression Pedal change	O	O	EXP. MODE: Received in EXTERNAL mode only.

nnH: Expression level 00H-7FH

Sustain Change

MIDI Signal	Function	Trn	Rec	Remarks
B0H,40H,nnH	UPPER SUSTAIN ON/OFF	O	O	ON: Sustain is applied. OFF: Sustain is not applied.
B1H,40H,nnH	LOWER SUSTAIN ON/OFF	O	O	
B2H,40H,nnH	PEDALS SUSTAIN ON/OFF	O	O	

nnH: 00H-3FH (OFF), 40H-7FH (ON)

2nd Expression Pedal Change

MIDI Signal	Function	Trn	Rec	Remarks
B0H,04H,nnH	2nd Expression Pedal change	X	O	LEAD Control: Received in EXTERNAL mode only.
B3H,04H,nnH		X	O	
BFH,04H,nnH		X	O	

nnH: 2nd Expression level 00H-7FH

NOTE: The 2nd Expression Pedal controls the pitch.

Modulation Change

MIDI Signal	Function	Trn	Rec	Remarks
B0H,01H,nnH	Modulation change	X	O	LEAD Control: Received in EXTERNAL mode only.
B3H,01H,nnH		X	O	
BFH,01H,nnH		X	O	

nnH: Modulation level 00H-7FH

NOTE: The Modulation Wheel controls the brilliance.

All Notes OFF

MIDI Signal	Function	Trn	Rec	Remarks
B0H,7BH,00H	All Upper Keyboard notes OFF	X	O	
B1H,7BH,00H	All Lower Keyboard notes OFF	X	O	
B2H,7BH,00H	All Pedal Keyboard notes OFF	X	O	
B3H,7BH,00H	All LEAD notes OFF	X	O	
B4H,7BH,00H	All ACC. notes OFF	X	O	
BFH,7BH,00H	All keyboard notes OFF	X	O	

Registration Memory Change

MIDI Signal	Function	Trn	Rec	Remarks
C0H,nnH	Registration Memory change	O	O	When another Regist. No. is set, all signals in the "MIDI Signal" column are transmitted.
C1H,nnH				
C2H,nnH				
CFH,nnH				

nnH: Registration No. 00-15

After Touch Change

MIDI Signal	Function	Trn	Rec	Remarks
D0H,nnH	Upper Keyboard After Touch change	O	O	
D1H,nnH	Lower Keyboard After Touch change	O	O	
D2H,nnH	Pedal Keyboard After Touch change	O	O	
D3H,nnH	LEAD After Touch change	O	O	LEAD CONTROL: Received in EXTERNAL mode only.
D4H,nnH	ACC. After Touch change	O	O	ACC. CONTROL: Received in EXTERNAL mode only.

nnH: After Touch 00H-7FH

Pitch Bend Change

MIDI Signal	Function	Trn	Rec	Remarks
E0H,nnH,mmH	Pitch Bend change	X	O	
E3H,nnH,mmH		X	O	LEAD Control: Received in EXTERNAL mode only.
EFH,nnH,mmH		X	O	

nnH,mmH: Pitch Bend level 000H-3FFFH

Rhythm Start

MIDI Signal	Function	Trn	Rec	Remarks
FAH	Rhythm Start	O	O	

Rhythm Stop

MIDI Signal	Function	Trn	Rec	Remarks
FCH	Rhythm Stop	O	O	

Rhythm Clock

MIDI Signal	Function	Trn	Rec	Remarks
F8H	Rhythm Clock	O	O	RHY. SYNC: Received in EXTERNAL mode only.

Active Sensing

MIDI Signal	Function	Trn	Rec	Remarks
FEH	Active Sensing	O	O	

System Reset

MIDI Signal	Function	Trn	Rec	Remarks
FFH	System Reset	X	O	

SYSTEM EXCLUSIVE MESSAGES

System Exclusive Messages are used to control data that pertains specifically to an Electone, as opposed to general MIDI data, which can apply to any MIDI instrument. These System Exclusive data include:

- ON/OFF status of the panel controls
- Data for the Music Disk Recorder
- Data related to the MIDI modes
- Other data stored in the memory of the Electone

General Format of a System Exclusive Message

System Exclusive Messages can be grouped into the two broad groups below:

ELECTONE

F0H,43H,70H,ID,FUNC,DATA (multiple bytes),F7H

SINGLE-KEYBOARD INSTRUMENT

F0H,43H,73H,FUNC,DATA (multiple bytes),F7H

The designation "H" after a two-digit number indicates that the number is in hexadecimal (base 16) notation, rather than decimal (base 10).

SYSTEM EXCLUSIVE MESSAGES FOR THE ELECTONE

F0H,43H,70H,ID,FUNC,DATA (multiple bytes),F7H

ID: This indicates the Model ID of the Electone that will be processing the message. The Model ID used by the US-1 can be one of the following three:

ID = 27H (US-1)
75H (US Series)
70H (Common ID for all Electones)

FUNC: This indicates the type of function to be performed. US-1 operation is compatible with 21 functions.

Compatibility Between Functions and Model IDs

		EL common 70H		US-1 27H		US Series 75H	
FUNC	Function	Trn	Rec	Trn	Rec	Trn	Rec
00H	Voice Data	X	O	X	O	O	O
	Model ID Data	X	O	O	O	X	O
	Bulk Data	X	O	O	O	X	O
01H	Request to Send Voice Parameters	X	O	X	O	X	O
02H	Request to Receive Voice Parameters	X	O	X	O	X	O
10H	Request to Send All RAM Data	X	O	X	O	X	X
11H	Request to Send Registration Data	X	O	X	O	X	X
12H	Request to Send C.S.P. Data	X	O	X	O	X	X
14H	Request to Send USER Rhythm Data	X	O	X	O	X	X
15H	Request to Send USER Rhythm Data	X	O	X	O	X	X
16H	Request to Send USER Voice Data	X	O	X	O	X	X
20H	Request to Receive All RAM Data	X	O	X	O	X	X
21H	Request to Receive Registration Data	X	O	X	O	X	X
22H	Request to Receive C.S.P. Data	X	O	X	O	X	X
24H	Request to Receive USER Rhythm Data	X	O	X	O	X	X
25H	Request to Receive USER Rhythm Data	X	O	X	O	X	X
26H	Request to Receive USER Voice Data	X	O	X	O	X	X
30H	Request to Send Model ID	X	O	X	X	X	X
38H	Bulk Data Received Status	O	X	X	X	X	X
40H	Control Change	O	O	X	X	X	X
41H	Panel Control	X	X	X	X	O	O
42H	Current Panel Data	X	X	X	X	O	O
70H	MDR Control	X	O	X	X	X	X
71H	MIDI Mode Change	O	O	X	X	X	X
72H	MDX Control	O	O	X	X	X	X
78H	Rhythm Sync Pointer	O	O	X	X	X	X

TRANSFER OF VOICE PARAMETERS

FUNC: 00H,01H,02H

Procedure for Transmitting Voice Parameters

(1) REQUEST TO SEND VOICE PARAMETERS

The MIDI signals below are sent to the Electone from an external device:

F0H,43H,70H,70H,27H or

75H,01H,ID1,ID2,SPL,SPH,DCL,DCH,F7H

ID1 = 10H U.ORC.
18H L.ORC.
20H U.PERC.
28H L.PERC.
30H LEAD
38H PEDALS
40H ACC. (Channel 0)
48H ACC. (not Channel 0)

ID2 = 00H

SPL,SPH = Voice Parameter offset values

DCL,DCH = Quantity of data to be transmitted

(2) TRANSMISSION OF DATA

The MIDI signals below are sent to the external device from the Electone:

F0H,43H,70H,75H,00H,DATA (multiple bytes),F7H

Procedure for Receiving Voice Parameters

(1) REQUEST TO RECEIVE VOICE PARAMETERS

The MIDI signals below are sent to the Electone from an external device:

F0H,43H,70H,70H,27H or
75H,02H,ID1,ID2,SPL,SPH,DCL,DCH,F7H

ID1 = 10H U. ORC.
18H L. ORC.
20H U. PERC.
28H L. PERC.
30H LEAD
38H PEDALS
40H ACC. (Channel 0)
48H ACC. (not Channel 0)
50H DSP-related CD data
58H OPRW-related CD data
ID2 = 00H
SPL,SPH = Voice Parameter offset values
DCL,DCH = Quantity of data to be received

(2) RECEPTION OF DATA

The MIDI signals below are sent to the external device from the Electone:

F0H,43H,70H,70H, 27H or 75H,00H,DATA (multiple bytes),F7H

TRANSFER OF BULK DATA

FUNC: 00H,10H,11H,12H,14H,15H,16H,20H,22H,24H,25H,26H

Procedure for Transmitting Bulk Data

(1) REQUEST TO SEND BULK DATA

The MIDI signals below are sent to the Electone from an external device:

F0H,43H,70H,70H,27H or 75H,FUNC,F7H

FUNC = 10H Request to Send All RAM Data
11H Request to Send Registration Data
12H Request to Send C.S.P. Data
14H Request to Send User Rhythm Data
15H Request to Send User Rhythm Data
16H Request to Send User Voice Data

(2) TRANSMISSION OF DATA

The MIDI signals below are sent to the external device from the Electone:

F0H,43H,70H,70H,00H,DATA (multiple bytes),F7H

Procedure for Receiving Bulk Data

(1) REQUEST TO RECEIVE BULK DATA

The MIDI signals below are sent to the Electone from an external device:

F0H,43H,70H,70H or 27H,FUNC,F7H

FUNC =	20H	Request to Receive All RAM Data
	21H	Request to Receive Registration Data
	22H	Request to Receive C.S.P. Data
	24H	Request to Receive User Rhythm Data
	25H	Request to Receive User Rhythm Data
	26H	Request to Receive User Voice Data

(2) RECEPTION OF DATA

The MIDI signals below are sent to the external device from the Electone:

F0H,43H,70H,70H,27H or 75H,00H,DATA (multiple bytes),F7H

TRANSMISSION OF THE MODEL ID

FUNC: 00H,30H

Procedure for Transmitting the Model ID

(1) REQUEST TO SEND MODEL ID

The MIDI signals below are sent to the Electone from an external device:

F0H,43H,70H,70H,30H,F7H

(2) TRANSMISSION OF DATA

The MIDI signals below are sent to the external device from the Electone:

F0H,43H,70H,27H,00H,F7H

TRANSMISSION OF BULK DATA RECEIVED STATUS

FUNC: 38H

After the Electone has received data in accordance with the Request to Receive Data messages of FUNC 20H, 21H, 22H, 24H, 25H, or 26H, it transmits the results of the reception using the MIDI signals below:

F0H,43H,70H,70H,38H,00H,F7H (Unsuccessful reception)

F0H,43H,70H,70H,38H,7FH,F7H (Successful reception)

CONTROL CHANGE

FUNC: 40H

This indicates the ON/OFF status of the following panel elements generally provided for Electones.

F0H,43H,70H,70H,40H,CODE,DATA,F7H

CODE	Panel Element	DATA
45H	LEFT FOOT switch	00H (OFF) or 7FH (ON)
46H	RIGHT FOOT switch	00H (OFF) or 7FH (ON)
47H	KNEE LEVER switch	00H (OFF) or 7FH (ON)
48H	FILL IN 1 switch	00H (OFF) or 7FH (ON)
49H	FILL IN 2 switch	00H (OFF) or 7FH (ON)
4BH	INTRO./ENDING switch	00H (OFF) or 7FH (ON)
4FH	MASTER VOLUME	00H-7FH
50H	Tempo value	Tempo value (2 bytes)

NOTE: For 50H (Tempo value) only, the DATA shall consist of two bytes.

PANEL CONTROL

FUNC: 41H

This indicates the ON/OFF status of the panel elements that vary with the Electone model.

F0H,43H,70H,75H,41H,CODE,DATA,F7H

CODE	Panel Element	DATA
0AH	RHYTHM Pattern switch	00H-0FH
0BH	KYBD. PERC. switch	00H (OFF) or 01H (ON)
0DH	M.O.C. switch	00H (OFF) or 01H (ON)
0EH	C.S.P. 1 switch	00H (OFF) or 01H (ON)
	C.S.P. 2 switch	02H (OFF) or 03H (ON)
	C.S.P. 3 switch	04H (OFF) or 05H (ON)
	C.S.P. 4 switch	06H (OFF) or 07H (ON)
	TACT switch	08H (OFF) or 09H (ON)
	REPEAT switch	0AH (OFF) or 0BH (ON)
	CHORD switch	0CH (OFF) or 0DH (ON)
15H	UPPER SUSTAIN VOLUME	00H-18H
16H	LOWER SUSTAIN VOLUME	00H-18H
17H	PEDALS SUSTAIN VOLUME	00H-18H
1AH	RHYTHM VOLUME	00H-7FH
1BH	RHYTHM BALANCE	00H-18H
20H	UPPER SUSTAIN switch	00H (OFF) or 01H (ON)
24H	LOWER SUSTAIN switch	00H (OFF) or 01H (ON)
28H	PEDALS SUSTAIN switch	00H (OFF) or 01H (ON)
3AH	ABC mode switch	00H (OFF) or 01H (ON)
	LOWER MEMORY switch	02H (OFF) or 03H (ON)
	PEDALS MEMORY switch	04H (OFF) or 05H (ON)
3CH	EXTRA CONT. switch	00H (OFF) or 01H (ON)
3DH	TRANSPOSITION switch	00H (OFF) or 01H (ON)
3EH	L. FOOT SEL switch	00H (OFF) or 01H (ON)
	R. FOOT SEL switch	02H (OFF) or 03H (ON)
	KNEE SEL switch	04H (OFF) or 05H (ON)

CODE	Panel Element	DATA
01H	U. ORC. Voice switch	00H-05H
02H	U. PERC. Voice switch	00H-05H
03H	LEAD Voice switch	00H-07H
05H	L. ORC. Voice switch	00H-05H
06H	L. PERC. Voice switch	00H-05H
07H	ACC. Voice switch	00H (OFF) OR 01H (ON)
09H	PEDALS Voice switch	00H-0AH
11H	U. ORC. VOLUME	00H-7FH
12H	U. PERC. VOLUME	00H-7FH
13H	LEAD VOLUME	00H-7FH
15H	L. ORC. VOLUME	00H-7FH
16H	L. PERC. VOLUME	00H-7FH
17H	ACC. VOLUME	00H-7FH
19H	PEDALS VOLUME	00H-7FH
1EH	REVERB VOLUME	00H-7FH
21H	U. ORC. VIBRATO switch	00H (OFF) or 01H (ON)
22H	U. PERC. VIBRATO switch	00H (OFF) or 01H (ON)
23H	LEAD VIBRATO switch	00H (OFF) or 01H (ON)
	LEAD T. VIBRATO switch	02H (OFF) or 03H (ON)
	LEAD SLIDE switch	04H (OFF) or 05H (ON)
25H	L. ORC. VIBRATO switch	00H (OFF) or 01H (ON)
26H	L. PERC. VIBRATO switch	00H (OFF) or 01H (ON)
2DH	TOUCH TONE switch	00H (OFF) or 01H (ON)
2EH	TREMOLO U. switch	00H (OFF) or 01H (ON)
	TREMOLO L. switch	02H (OFF) or 03H (ON)
	TREMOLO CONTROL	04H (OFF), 05H (CHORUS), or 06H (TREMOLO)
31H	U. ORC. EFFECT switch	00H (OFF) or 01H (ON)
32H	U. PERC. EFFECT switch	00H (OFF) or 01H (ON)
33H	LEAD EFFECT switch	00H (OFF) or 01H (ON)
35H	L. ORC. EFFECT switch	00H (OFF) or 01H (ON)
36H	L. PERC. EFFECT switch	00H (OFF) or 01H (ON)
37H	ACC. EFFECT switch	00H (OFF) or 01H (ON)
39H	BASS EFFECT switch	00H (OFF) or 01H (ON)

CURRENT PANEL DATA

FUNC: 42H

This indicates the current settings of all panel elements of the Electone.

F0H,43H,70H,75H,42H,DATA (multiple bytes),F7H

This message can be either transmitted or received.

Whenever the Electone receives a RECORD START command from the MDR, it transmits the Current Panel Data.

MDR CONTROL

FUNC: 70H

This indicates the ON/OFF status of settings related to MDR control.

F0H,43H,70H,70H,70H,CODE,DATA,F7H

The MDR Control messages can only be received.

CODE	Function	DATA
01H	PLAY START	None
02H	PLAY STOP	None
03H	RECORD START	None
04H	RECORD STOP	None
05H	Fast Forward START	None
06H	Fast Forward STOP	None
07H	Fast Reverse START	None
08H	Fast Reverse STOP	None
09H	Rhythm Pointer Reset	None
10H	Master Volume +	Variable range (1 byte)
11H	Master Volume --	Variable range (1 byte)

MIDI MODE CHANGE

FUNC: 71H

This selects a MIDI-related function of the Electone.

F0H,43H,70H,70H,71H,CODE,DATA,F7H

This message can be either transmitted or received.

CODE	Function	DATA
06H	Expression Pedal Mode	00H (OFF) or 7FH (ON)
07H	Change the Receiving Channel	30H (LEAD Rec CH 1) 33H (LEAD Rec CH 4) 41H (ACC. Rec CH 2) 44H (ACC. Rec CH 5)
08H	Change the Transmitting Channel	70H (UK = 1, LK = 2) 71H (UK = 4, LK = 5) 72H (UK = 1, LK = 15)

MIDI EXTERNAL (MDX) CONTROL

FUNC: 72H

The MDX can be externally controlled from the Electone (see “MIDI External Control,” on page 59).

F0H,43H,70H,70H,72H,CODE,DATA,F7H

This message can only be transmitted.

CODE	Function	DATA
00H	EXTERNAL switch 00	00H (OFF) or 7FH (ON)
01H	EXTERNAL switch 01	00H (OFF) or 7FH (ON)
02H	EXTERNAL switch 02	00H (OFF) or 7FH (ON)
03H	EXTERNAL switch 03	00H (OFF) or 7FH (ON)

RHYTHM SYNC (BAR) SIGNALS

FUNC: 78H

F0H,43H,70H,70H,78H,SC,NC,F7H

SC = The number of beats in one measure

NC = The repetition of the Rhythm pattern

During transmission, this message is sent once for each measure of the rhythm.

During reception, it is received from the time an MDR Fast Forward START message is received until an MDR Fast Forward STOP message is received.

SYSTEM EXCLUSIVE MESSAGE FOR A SINGLE-KEYBOARD INSTRUMENT

F0H,43H,73H,FUNC,DATA,F7H

The System Exclusive Message of a single-keyboard instrument that can be received by the Electone consists of the following:

FUNC	Function	DATA
00H	RHYTHM SYNC mode	02H (INT) or 03H (EXT)

US-1 SPECIFICATIONS

KEYBOARDS

Upper:	61 Keys (Velocity- and Pressure-Sensitive)
Lower:	61 Keys (Velocity- and Pressure-Sensitive)
Pedal:	20 Keys (Velocity- and Pressure-Sensitive)

VOICE SECTIONS

Upper Orchestral:	Pop Organ 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, Jazz Organ 1, 2, Church 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, Strings 1, 2, 3, 4, 5, 6, 7, Tremolo Strings, Pizzicato Strings, Orchestra 1, 2, 3, 4, 5, Brass 1, 2, 3, 4, Trumpets, Muted Trumpets, Horns, Trombones, Muted Trombones, Wood 1, 2, Flutes, Clarinets, Alto Saxophones, Tenor Saxophones, Harmonica, Accordion, Chorus 1, 2, 3, 4, 5, User 1, 2, Vibrato, Effect, Volume
Upper Percussive:	Piano 1, 2, Electric Piano 1, 2, 3, Honky Tonk Piano, Harpsichord 1, 2, Clavi, Vibraphone, Xylophone, Marimba, Marimba Tremolo, Glockenspiel, Chime, Celesta, Music Box, Steel Drum, Gut Guitar, Folk Guitar, Jazz Guitar, Semi Acoustic Guitar, Steel Guitar, Electric Guitar, Distortion Guitar, Banjo, Banjo Repeat, Mandolin, User 3, 4, Vibrato, Effect, Volume
Upper Lead:	Flute, Piccolo, Jazz Flute, Pan Flute, Whistle, Clarinet, Oboe, Bassoon, Soprano Sax, Alto Sax, Tenor Sax, Harmonica, Trumpet, Muted Trumpet, Flugelhorn, Horn, Trombone, Muted Trombone, Violin 1, 2, Cello, User 5, 6, Vibrato, Touch Vibrato, Slide, Effect, Volume
Lower Orchestral:	Pop Organ 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, Jazz Organ 1, 2, Church 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, Strings 1, 2, 3, 4, 5, 6, 7, Tremolo Strings, Pizzicato Strings, Orchestra 1, 2, 3, 4, 5, Brass 1, 2, 3, 4, Trumpets, Muted Trumpets, Horns, Trombones, Muted Trombones, Wood 1, 2, Flutes, Clarinets, Alto Saxophones, Tenor Saxophones, Harmonica, Accordion, Chorus 1, 2, 3, 4, 5, User 7, 8, Vibrato, Effect, Volume
Lower Percussive:	Piano 1, 2, Electric Piano 1, 2, 3, Honky Tonk Piano, Harpsichord 1, 2, Clavi, Harp, Koto, Gut Guitar, Folk Guitar, Jazz Guitar, Semi Acoustic Guitar, Steel Guitar, Electric Guitar, Distortion Guitar, Banjo, Banjo Repeat, Mandolin, User 9, 10, Vibrato, Effect, Volume
Pedals:	Combi. Bass 1, 2, Pipe Bass 1, 2, 3, Wood Bass 1, 2, Contra Bass 1, 2, Tuba, Trombone, Bass Clarinet, Baritone Sax, Electric Bass 1, 2, Funk Bass, Chopper Bass, Piano 1, 2, Timpani, Timpani Roll, Jug Bass, Synth Bass 1, 2, Wave, User 11, 12, Effect, Volume

**Voices
Assignable to
User Buttons
1 and 2:**

1: POP ORGAN 1	47: WOOD 1	93: MUSIC BOX
2: POP ORGAN 2	48: WOOD 2	94: STEEL DRUM
3: POP ORGAN 3	49: FLUTES	95: FLUTE
4: POP ORGAN 4	50: CLARINETS	96: PICCOLO
5: POP ORGAN 5	51: A. SAXOPHONES	97: JAZZ FLUTE
6: POP ORGAN 6	52: T. SAXOPHONES	98: PAN FLUTE
7: POP ORGAN 7	53: HARMONICA	99: WHISTLE
8: POP ORGAN 8	54: ACCORDION	100: CLARINET
9: POP ORGAN 9	55: CHORUS 1	101: OBOE
10: POP ORGAN 10	56: CHORUS 2	102: BASSOON
11: POP ORGAN 11	57: CHORUS 3	103: SOPRANO SAX
12: POP ORGAN 12	58: CHORUS 4	104: ALTO SAX
13: POP ORGAN 13	59: CHORUS 5	105: TENOR SAX
14: JAZZ ORGAN 1	60: ORCHESTRA 1	106: TRUMPET
15: JAZZ ORGAN 2	61: ORCHESTRA 2	107: MUTED TRPT.
16: CHURCH 1	62: ORCHESTRA 3	108: FLUGELHORN
17: CHURCH 2	63: ORCHESTRA 4	109: HORN
18: CHURCH 3	64: ORCHESTRA 5	110: TROMBONE
19: CHURCH 4	65: PIANO 1	111: MUTED TRBN.
20: CHURCH 5	66: PIANO 2	112: VIOLIN 1
21: CHURCH 6	67: ELEC. PIANO 1	113: VIOLIN 2
22: CHURCH 7	68: ELEC. PIANO 2	114: CELLO
23: CHURCH 8	69: ELEC. PIANO 3	115: COMBI. BASS 1
24: CHURCH 9	70: H. TONK PIANO	116: COMBI. BASS 2
25: CHURCH 10	71: HARPSICHORD 1	117: PIPE BASS 1
26: CHURCH 11	72: HARPSICHORD 2	118: PIPE BASS 2
27: CHURCH 12	73: CLAVI	119: PIPE BASS 3
28: CHURCH 13	74: HARP	120: WOOD BASS 1
29: STRINGS 1	75: KOTO	121: WOOD BASS 2
30: STRINGS 2	76: GUT GUITAR	122: CONTRA BASS 1
31: STRINGS 3	77: FOLK GUITAR	123: CONTRA BASS 2
32: STRINGS 4	78: JAZZ GUITAR	124: BASS CLARINET
33: STRINGS 5	79: SEMI ACOU.GT.	125: BARITONE SAX
34: STRINGS 6	80: STEEL GUITAR	126: TUBA
35: STRINGS 7	81: ELEC. GUITAR	127: ELEC. BASS 1
36: TREM. STRINGS	82: DISTOR. GUIT.	128: ELEC. BASS 2
37: PIZZ. STRINGS	83: BANJO	129: FUNK BASS
38: BRASS 1	84: BANJO-REPEAT	130: CHOPPER BASS
39: BRASS 2	85: MANDOLIN	131: JUG BASS
40: BRASS 3	86: VIBRAPHONE	132: TIMPANI
41: BRASS 4	87: XYLOPHONE	133: TIMPANI-ROLL
42: TRUMPETS	88: MARIMBA	134: SYNTH BASS 1
43: MUTED TRPTS.	89: MARIMBA TREM.	135: SYNTH BASS 2
44: HORNS	90: GLOCKENSPIEL	136: WAVE
45: TROMBONES	91: CHIME	137: USER
46: MUTED TRBNS.	92: CELESTA	

Accompaniment: Jazz Organ, Strings 1, 2, 3, 4, 5, 6, Pizzicato Strings, Brass 1, 2, 3, 4, 5, Trumpets, Muted Trumpets, Wood 1, 2, 3, 4, Flutes, Clarinets, Alto Saxophones, Harmonica, Accordion, Chorus 1, 2, 3, 4, 5, Piano 1, 2, Electric Piano 1, 2, 3, 4, Harpsichord, Harp, Koto, Acoustic Guitar 1, 2, 3, Mute Guitar 1, 2, Folk Guitar, Jazz Guitar, Semi Acoustic Guitar 1, 2, Solid Guitar, Steel Guitar, Electric Guitar, Distortion Guitar, Banjo, Vibraphone, Xylophone, Marimba, Glockenspiel, Celesta, Steel Drum, Synth 1, 2, User 13, Effect, Volume

AUTO RHYTHM SECTION

Patterns: March 1, 2, 3, Polka 1, 2, Dixieland, Waltz 1, 2, 3, Country 1, 2, Ballad 1, 2, 3, 4, Swing 1, 2, 3, 4, 5, Bounce 1, 2, 3, Reggae, Slow Rock 1, 2, 3, Bossanova 1, 2, 3, Latin Rock, Cha-Cha, Latin 1, 2, 3, Beguine, Rhumba, Samba 1, 2, 3, Salsa 1, 2, Tango 1, 2, 8 Beat 1, 2, 3, 16 Beat 1 2, 3, Disco 1, 2, 3, User 1, 2, 3, 4

Patterns	1: MARCH 1	19: SWING 4	37: RHUMBA
Assignable to	2: MARCH 2	20: SWING 5	38: SAMBA 1
User Buttons	3: MARCH 3	21: BOUNCE 1	39: SAMBA 2
1-4:	4: POLKA 1	22: BOUNCE 2	40: SAMBA 3
	5: POLKA 2	23: BOUNCE 3	41: SALSA 1
	6: DIXIELAND	24: REGGAE	42: SALSA 2
	7: WALTZ 1	25: SLOW ROCK 1	43: TANGO 1
	8: WALTZ 2	26: SLOW ROCK 2	44: TANGO 2
	9: WALTZ 3	27: SLOW ROCK 3	45: 8 BEAT 1
	10: COUNTRY 1	28: BOSSANOVA 1	46: 8 BEAT 2
	11: COUNTRY 2	29: BOSSANOVA 2	47: 8 BEAT 3
	12: BALLAD 1	30: BOSSANOVA 3	48: 16 BEAT 1
	13: BALLAD 2	31: LATIN ROCK	49: 16 BEAT 2
	14: BALLAD 3	32: CHA-CHA	50: 16 BEAT 3
	15: BALLAD 4	33: LATIN 1	51: DISCO 1
	16: SWING 1	34: LATIN 2	52: DISCO 2
	17: SWING 2	35: LATIN 3	53: DISCO 3
	18: SWING 3	36: BEGUINE	54: USER

Variations: Fill In 1, 2, Intro./Ending, Accompaniment 1, 2, 3, 4

Others: Start, Synchro Start, Tempo Dial, Tempo Display, Downbeat Indicator Lamp, Balance, Disable, Volume

KEYBOARD PERCUSSION

Modes: Preset, User

Instruments: Ride Cymbal, Ride Cup, Crash Cymbal, High-Hat (Closed, Open, Pedal), Snare Drum 1 (Light, Rim), Snare Drum 2 (Heavy, Reverb, Gate Echo, Synth), Brush (Roll, Shot), Tom (1, 2, 3, 4), Synth Drum (1, 2, 3, 4), Bass Drum (Heavy, Light), Hand Claps, Cabasa, Agogo (High, Low), Tambourine, Pandiero, Tamborim (Open, Mute), Cuica (High, Medium, Low), Shaker, Surdo (Open, Mute, Rim), Claves, Bongo (High, Low, Slap), Conga (Muffled, High, Low, Slap), Timbales (High, Low), Cowbell (1, 2), Guiro (Short, Long), Vibra-Slap, Triangle (Closed, Open), Wood Block (High, Medium, Low), Castanets, Tap Dance (1, 2, 3, 4, 5), Classical Cymbal

Effects: Flanger, Delay

Assign: All Clear, All Original, Quit

AUTO BASS CHORD

Modes: Single Finger, Fingered Chord, Custom

Others: Lower Memory, Pedal Memory

CHORD SEQUENCE PROGRAMMER

Modes: Record, Play, Edit

Songs: 1, 2, 3, 4

Others: Delete, Insert, Beats (1, 2, 3, 4), Segno, Coda, D.S., Bar/Beat Display, End

REGISTRATION MEMORY SYSTEM

Registration Memory 1-16, Memory/To Pack, Naming

REGISTRATION PACK SYSTEM

Confirm, To Pack, From Pack, Ready Lamp, Error Lamp, RAM Pack Socket

PRESET REGISTRATION MENU

General: Marching Band, Electronic Organ, Hawaiian Style, Dixieland Band, Woodwind Ensemble, Sax Ensemble, Trombone Ensemble, Full Big Band, Flute Ensemble, Marimba, Clarinet Ensemble, Piano + Organ, Country Guitar, Country Fiddles, Guitar + Chorus, Piano + Guitar

Theater/Classical: Theater 1-8, Classical 1-8

EFFECTS

Vibrato: Preset, User (Delay, Depth, Speed)
Touch Vibrato: Depth, Speed
Slide: Preset, User
Symphonic: Mode 1, 2
Celeste: Mode 1, 2
Phaser: Stage, Frequency, Depth, Feedback
Flanger: Delay Time, Depth, Frequency, Feedback
Delay: Delay Time, Feedback, Direct, Delay
Wah: Speed, Frequency, Depth
Tremolo: Chorus, Tremolo, Upper Orchestral, Lower Orchestral, Speed
Sustain: Upper, Lower, Pedal, Knee
Reverb: Mode 1, 2, 3, 4, Volume

MELODY ON CHORD

Mode 1, 2, 3

OTHER CONTROLS

Power Switch, Master Volume, Remote Volume Indicator Lamp, Expression Pedal, Right Footswitch (Tremolo, Registration Shift, Registration Jump), Left Footswitch (Rhythm, Glide, Tempo), Knee Lever (Melody On Chord, Slide, Sustain), Control Panel Lights, Pedal Keyboard Light, Multi Menu Data Dial, Multi Menu Display, Multi Menu Buttons, Pitch, Touch Tone (Lead, Upper, Lower, Pedal), Manual Balance, Transposition, External Control

OTHER FITTINGS

MIDI In/Out/Thru, MDR In/Out/Thru, Stereo Headphones Jack, Microphone In, Microphone Volume, Aux Out (Left, Right), Aux In (Left, Right), Expression In (Left/Mono, Right)

MUSIC DISK RECORDER

Storage Medium: 3.5" Floppy Disk

Memory Capacity: 634 kByte, 16 Songs

Controls: Song Select (+/-), Song Sequencer, Play (Custom, Normal), Minus Play, Stop/Copy, Record/Format, Edit/Copy, Eject

Display: Song Number, Time & Control, Play Mode, Signal

RT-2 Remote Transmitter Controls: Song Select (+/-), Play (Custom, Normal), Stop, Fast Forward, Fast Reverse, Pause, Tempo (+/Normal/-), Transposition (+/Normal/-), Volume (+/-), Play Mode (Normal, Phrase), Song Sequencer (Single, Repeat)

Others: Disk Insertion Slot, Remote Transmitter Compartment

SOUND SYSTEM

Amplifiers: 60 Watts x 4

Speakers: 2 12" Woofers
2 2 $\frac{1}{3}$ " Dome Midrange Speakers
2 2" Dome Tweeters
2 4" Full-Range Speakers (built into the control panel as monitors)

DIMENSIONS

Organ: Height: 43" (Music Rack Down)
51 $\frac{1}{4}$ " (Music Rack Up)
Width: 54"
Depth: 29"

Bench: Height: 23"
Width: 37"
Depth: 13"

WEIGHT

Organ: 374 lbs.
Bench: 45 lbs.
TOTAL: 419 lbs.

CABINETRY

Materials: Real American Walnut Veneer With Selected Solid Hardwood Components

Others: Music Rack, Padded Matching Bench, Locking Roll-Top Fallboard

Finish: American Walnut

NOTE: SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

SINGLE FINGER CHORDS

C 	Cm 	C7 	Cm7
C♯/D♭ 	C♯m/D♭m 	C♯7/D♭7 	C♯m7/D♭m7
D 	Dm 	D7 	Dm7
D♯/E♭ 	D♯m/E♭m 	D♯7/E♭7 	D♯m7/E♭m7
E 	Em 	E7 	Em7
F 	Fm 	F7 	Fm7

F♯/G♭ 	F♯m/G♭m 	F♯7/G♭7 	F♯m7/G♭m7
G 	Gm 	G7 	Gm7
G♯/A♭ 	G♯m/A♭m 	G♯7/A♭7 	G♯m7/A♭m7
A 	Am 	A7 	Am7
A♯/B♭ 	A♯m/B♭m 	A♯7/B♭7 	A♯m7/B♭m7
B 	Bm 	B7 	Bm7

FINGERED CHORDS

C 	Cm 	C7 	Cm7
C♯/D♭ 	C♯m/D♭m 	C♯7/D♭7 	C♯m7/D♭m7
D 	Dm 	D7 	Dm7
D♯/E♭ 	D♯m/E♭m 	D♯7/E♭7 	D♯m7/E♭m7
E 	Em 	E7 	Em7
F 	Fm 	F7 	Fm7

F♯/G♭ 	F♯m/G♭m 	F♯7/G♭7 	F♯m7/G♭m7
G 	Gm 	G7 	Gm7
G♯/A♭ 	G♯m/A♭m 	G♯7/A♭7 	G♯m7/A♭m7
A 	Am 	A7 	Am7
A♯/B♭ 	A♯m/B♭m 	A♯7/B♭7 	A♯m7/B♭m7
B 	Bm 	B7 	Bm7

OWNERS GUIDE

YAMAHA

US-1

